

1- 14 - Canceled

15. (currently amended): A real time PCR instrument comprising

- at least 1 light source,
- a plurality of a least 5 optical fiber bundles, each said bundle transmitting light to one of a plurality of at least 5 separate fluorescent detector entities, each of said entities having a central detection ~~wavelengths~~ wavelength said wavelengths being which are distinct from each other by at least 25 –30 nm,

and characterized in that said plurality of detector entities are is capable of

- simultaneously detecting maximum fluorescence emission of at least 5 different fluorescent compounds ~~3-differently-labeled-FRET-Hybridization Probe pairs,~~
- simultaneously detecting maximum fluorescence emission of at least 2 differently labeled TaqMan hybridization probes, and
- detecting maximum fluorescence emission of SybrGreenI
- means for heating and cooling, and
- multiple reaction vessels for containing a reaction mixture.

16. (previously amended): A real time PCR instrument according to claim 15 comprising one light source.

17. (previously amended): An instrument according to claim 15, wherein said central detection wavelengths are selected from a group of range of wavelengths, said group consisting of 520-540 nm, 545-565 nm, 570-590 nm, 600-620 nm, 630-650 nm, 660-680 nm, and 700-720 nm.